



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/612,548	07/07/2000	Hiromi Shikata	040679/1099	9368
22428	7590	04/22/2005	EXAMINER	
FOLEY AND LARDNER SUITE 500 3000 K STREET NW WASHINGTON, DC 20007			LE, BRIAN Q	
			ART UNIT	PAPER NUMBER
			2623	

DATE MAILED: 04/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/612,548

Applicant(s)

SHIKATA, HIROMI

Examiner

Brian Q Le

Art Unit

2623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 November 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) 2,3,10,14-17,19-24 and 31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4-9,11-13,18,25-30 and 32-40 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### **Response to Amendment and Arguments**

1. Applicant's amendment filed November 02, 2004, has been entered and made of record.
2. The rejections of 1, 4-6, and 12 under 35 USC 112, second paragraph are withdrawn.
3. Applicant's arguments, see "Remarks", filed November 02, 2004, with respect to the rejection(s) of claim(s) 1, 12, 18, 27 and 29-30 under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,115,505 to Hashima have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Wilcke U.S. Patent No. 6,240,209.

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1-5, 10, 12, 14-27, 29-30, 32-35, and 40 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Regarding claims 1, 12, 18, and 30, the added limitation "the predetermined form pattern including one of a convex pattern and a concave pattern" is not supported in the original disclosure. Regarding claims 32-35, the new limitation "wherein the convex pattern includes a rectangular pattern" is not supported in the original disclosure. Also to claim 40, the new limitation "calculating an autocorrelation coefficient of the reference image by assigning a density distribution value of a background area of the reference

Art Unit: 2623

image to a first constant value and by assigning a density distribution value of a foreground area of the reference image to a second constant value different from the first constant value” is not supported in the original disclosure. The Applicant must clearly show the support (page number and line number) for the aforementioned limitations in the original disclosure.

Claims not specifically addressed depend from indefinite antecedent claims.

### *Claim Objections*

6. Claims 32-35 are objected to because these claims are very difficult to understand due to the use of confusing language. The Examiner does not quite understand how the convex pattern can include a rectangular pattern. Appropriate correction is required. The prior art rejection based on the Examiner’s best understanding.

### *Claim Rejections - 35 USC § 103*

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1, 4-5, 12, 18, 25-26, 30, and 36-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Hashima U.S. Patent No. 6,115,505 and Wilcke U.S. Patent No. 6,240,209.

Regarding claim 1, Hashima teaches a method of recognizing an object (Abstract) based on pattern matching (FIG. 1, element 180) using a gray-scale (FIG. 9) normalized correlation

Art Unit: 2623

method (FIG. 1, elements 140 and 150; column 7, lines 57-66; column 8, lines 1-14; column 1, line 67 and column 2, lines 1-17), comprising the steps of:

Storing a reference image including a foreground and a background, said foreground and said background each having a predetermined value of density distribution (FIG. 5; column 1, lines 59-62 and column 7, lines 3-23 and 39-45);

Inputting an image of the object (FIG. 1, element 110) said image including a foreground and a background, said foreground and said background each having a predetermined average value of density distribution (column 1, lines 63-67);

Storing a function for giving said predetermined values of density distribution of said reference image corresponding to said predetermined average values of density distribution of said input image, respectively (column 15, lines 29-34), said function providing a predetermined form pattern (abstract, first 2 lines), such that one of said predetermined values of density distribution (the process of arranging the density value of object or background) (column 9, lines 7-20 and 25-30) of said foreground and said background of said reference image is high, and another is low (FIG. 5); and

Obtaining a normalized correlation coefficient between said reference image and said input image using said function (column 16, lines 27-30).

Hashima does not explicitly teaches the method wherein the predetermined form pattern including on of a convex pattern and a concave pattern. Wilcke teaches a process of recognizing object (character recognition) (abstract) wherein the "Prior Art" of the invention discloses that the formed pattern can be concave or convex structure. Modifying Hashima's method of recognizing an object according to Wilcke would able to allow the predetermined form pattern to

Art Unit: 2623

be concave or convex for the pattern matching purpose. This would improve processing and therefore, it would have been obvious to one of the ordinary skill in the art to modify Hashima according to Wilcke.

Regarding claim 4, Hashima teaches a method wherein said function is obtained by designating a pattern of said reference image (column 1, lines 60-65), overlaying (superimpose) (column 9, lines 31-40) an image of said pattern on said input image, and designating one of a predetermined average value of density distribution of said image and a predetermined value of density of said image (column 4, lines 1-13 and column 8, lines 48-65).

For claim 5, Hashima teaches the method wherein said function is obtained by extracting (cutting out) an outline of the object, overlaying an image of said outline on said input image, and designating one of a predetermined average density distribution of said image and a predetermined value of density of said image (column 8, lines 15-65).

For claim 12, please refer back to claim 1. In addition, Hashima teaches a medium for recording (column 1, line 60) a computer program (column 13, line 40) to process the limitations in claim 12.

Regarding claim 18, please refer back to claim 1 for the explanation.

For claims 25-26, please refer back to claims 4-5 for further explanation.

Regarding claim 30, please refer back to claim 1 for further explanation.

Referring to claim 36, Hashima further teaches a method of recognizing an object based on pattern matching using a normalized correlation method, comprising:

Storing a reference image including a foreground and a background (column 1, lines 59-62 and column 7, lines 3-23 and 39-45);;

Art Unit: 2623

Separating the foreground and background of the reference image from each other (FIG. 4, element 4\_2);

Inputting an image of the object (FIG. 1, element 110); and

Calculating a normalized correlation coefficient between the foreground of the reference image and the input image (column 16, lines 27-30).

For claim 37, please refer back to claim 36 for the explanation.

9. Claims 27, 29, and 38-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Hashima U.S. Patent No. 6,115,505 and Wilcke U.S. Patent No. 6,240,209, as applied to claim 36 and further in view of Molley U.S. Patent No. 5,060,282.

Referring to claim 27, Hashima teaches the method wherein said normalized correlation coefficient is obtained from simple summation of a correlation coefficient between the reference image and the input image (column 7, lines 57-66 to column 8, lines 1-5). Hashima does not explicitly teach the method calculating the cross-correlation coefficient. Molley teaches a pattern recognition architecture which further teaches the concept of calculating a cross-correlation coefficient between said reference image and said input image (column 2, lines 35-50). Modifying Hashima's method of recognizing an object by pattern matching according to Molley would be able to improve the correlation calculation between the mismatch between the template and image. This would improve processing and therefore, it would have been obvious to one of the ordinary skill in the art to modify Hashima according to Molley.

For claims 29 and 38, please refer back to claim 27 for further teachings and explanations.

Art Unit: 2623

Regarding claim 39, Molley further teaches the method wherein the calculating is carried out by simple summation of a cross-correlation coefficient between the reference image and the input image (column 9, lines 53-67).

10. Claims 32-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Hashima U.S. Patent No. 6,115,505 and Wilcke U.S. Patent No. 6,240,209, as applied to claim 36 and further in view of Jang U.S. Patent No. 5,757,953.

For claim 32, Hashima and Wilcke do not explicitly teach the convex pattern includes a rectangular pattern. Jang teaches a recognition and classifying process wherein it is well known in the art that a convex pattern can include rectangular pattern (column 5, lines 16-37). Modifying Hashima's method of recognizing an object by pattern matching (column 6, lines 35-40) according to Jang would be able to include rectangular pattern as a convex pattern. This would improve processing and therefore, it would have been obvious to one of ordinary skill in the art to modify Hashima according to Jang.

For claims 33-35, please refer back to claims 32 for the teaching and explanation.

***Allowable Subject Matter***

11. Claim 40 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.



***Conclusion***

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

***Contact Information***

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Q Le whose telephone number is 571-272-7424. The examiner can normally be reached on 8:30 A.M - 5:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on 571-272-7414. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9306 for regular communications and 703-872-9306 for After Final communications.

Art Unit: 2623

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

BL

April 13, 2005

A handwritten signature in black ink, appearing to be 'SA', with a long horizontal line extending to the left and a large loop to the right.

**SAMIR AHMED  
PRIMARY EXAMINER**